DOCUMENTATION OF ENVIRONMENTAL INDICATOR DETERMINATION
Interim Final 2/5/99
RCRA Corrective Action
Environmental Indicator (EI) RCRIS code (CA725)
Current Human Exposures Under Control

Facility Name: **KOPPERS CO.-HODGE FOUNDRY**
Facility Address: **42 LEACH ROAD, GREENVILLE, PA 16125**
Facility EPA ID #: **EPA ID # PAD 00 432 3796**

1. Has **all** available relevant/significant information on known and reasonably suspected releases to soil, groundwater, surface water/sediments, and air, subject to RCRA Corrective Action (e.g., from Solid Waste Management Units (SWMU), Regulated Units (RU), and Areas of Concern (AOC)), been **considered** in this EI determination?

X If yes - check here and continue with #2 below.

_____ If no - re-evaluate existing data, or

_____ If data are not available skip to #6 and enter "IN" (more information needed) status code.

BACKGROUND
Definition of Environmental Indicators (for the RCRA Corrective Action)

Environmental Indicators (EI) are measures being used by the RCRA Corrective Action program to go beyond programmatic activity measures (e.g., reports received and approved, etc.) to track changes in the quality of the environment. The two EI developed to-date indicate the quality of the environment in relation to current human exposures to contamination and the migration of contaminated groundwater. An EI for non-human (ecological) receptors is intended to be developed in the future.

Definition of "Current Human Exposures Under Control" EI

A positive "Current Human Exposures Under Control" EI determination ("YE" status code) indicates that there are no "unacceptable" human exposures to "contamination" (i.e., contaminants in concentrations in excess of appropriate risk-based levels) that can be reasonably expected under current land- and groundwater-use conditions (for all "contamination" subject to RCRA corrective action at or from the identified facility (i.e., site-wide)).

Relationship of EI to Final Remedies

While Final remedies remain the long-term objective of the RCRA Corrective Action program the EI are near-term objectives which are currently being used as Program measures for the Government Performance and Results Act of 1993, GPRA). The "Current Human Exposures Under Control" EI are for reasonably expected human exposures under current land- and groundwater-use conditions ONLY, and do not consider potential future land- or groundwater-use conditions or ecological receptors. The RCRA Corrective Action program's overall mission to protect human health and the environment requires that Final remedies address these issues (i.e., potential future human exposure scenarios, future land and groundwater uses, and ecological receptors).

Duration / Applicability of EI Determinations

EI Determinations status codes should remain in RCRIS national database ONLY as long as they remain true (i.e., RCRIS status codes must be changed when the regulatory authorities become aware of contrary information).

2. Are groundwater, soil, surface water, sediments, or air **media** known or reasonably suspected to be **"contaminated"** [1] above appropriately protective risk-based "levels" (applicable promulgated standards, as well as other appropriate standards, guidelines, guidance, or criteria) from releases subject to RCRA Corrective Action (from SWMUs, RUs or AOCs)?

	Yes	No	?	Rationale / Key Contaminants
Groundwater	X			
Air (indoors)[2]			X	**Baghouse dust was analyzed in 1989 and found to contain the following total metal concentrations: chromium (349 ppm), nickel (476 ppm), copper (214 ppm), and molybdenum (223 ppm).**
Surface Soil (e.g., <2 ft)	X			**various PAHs, phenols, hexavalent chromium possible hydraulic oil as per 7/23/91 NUS SI**
Surface Water		X		
Sediment		X		
Subsurf. Soil (e.g., >2 ft)	X			**phenols, benzoic acid, Cr+3, hexavalent chromium possible hydraulic oil as per 7/23/91 NUS SI**
Air (outdoors)		X		**Monitored under a Title V permit for air emissions of VOCs generated from the use of binders used in the mold and core production and surface coating processes.**

_____ If no (for all media) - skip to #6, and enter "YE," status code after providing or citing appropriate "levels," and referencing sufficient supporting documentation demonstrating that these "levels" are not exceeded.

X If yes (for any media) - continue after identifying key contaminants in each "contaminated" medium, citing appropriate "levels" (or provide an explanation for the determination that the medium could pose an unacceptable risk), and referencing supporting documentation**.**

_____ If unknown (for any media) - skip to #6 and enter "IN" status code.

Rationale and Reference(s):

Soil samples collected during the NUS Site Investigation (NUS SI July 23, 1991 Report) revealed contaminants exceeding regulatory levels. Several of these readings were obtained near the Hazardous Waste Storage Area. PAHs and another contaminant exceeding regulatory limits for Region III Residential Soils include:

Contaminant	Industrial Soil RBC (ug/kg)	Residential Soil RBC (ug/kg)	Soil Sample (ug/kg)
Benzo(a) anthracene	7,800	870	4,400
Benzo(b) fluoranthene	7,800	870	6,600
Benzo (k) fluoranthene	78,000	8,700	6,600
Dibenzo (a,h) anthracene	780	87	1,500
Indeno (1,2,3-cd) pyrene	7,800	870	6,700
Benzo (a) pyrene	780	87	5,900
Phenols	1,200,00	47,000	160,000

July 23, 1991 NUS SI (12/3-5/1990 sample)

It is significant that the Hazardous Waste Storage Area does not offer secondary containment. While it is built up on three sides, the entrance area to the flat and open and incapable of retarding a significant spill (September 22, 2000 site visit photos).

Former Foundry Sand and Slag Waste Disposal Area: During 1946 to 1980, the facility used foundry sand and slag as fill material to build up the site, causing steep slopes of fill material. Leachate analyses of the foundry sands and slags have indicated that most of these wastes are non-hazardous; however, a waste stream referred to as Permanete 165 was found to leach hexavalent chromium at levels exceeding RCRA guidelines (enclosure to 4/14/83 letter from Koppers to PADER Meadville office). Permanete 165 was determined to be the only waste stream that had been going to the on-site waste disposal area that was ever tested and found to be hazardous. For the past 20 years (since 1981), all waste streams have been disposed of at off-site Pennsylvania Department of Environmental Resources approved sanitary landfills (enclosure to 4/14/83 letter from Koppers to PADEP Meadville office).

<u>Former Hydraulic Oil UST Site:</u> Just to the southeast of the main facility building is a fuel island (Refer to Attachment 2 – SWMU Location Map in the Environmental Indicator Inspection Report for Koppers Co.-Hodge Foundry (January 2002), USACE, Norfolk District). Four tanks were associated with this island: a 1,000-gallon underground diesel fuel tank, a 1,000-gallon underground gasoline tank, a 1,000-gallon underground hydraulic oil tank and a 350-gallon aboveground kerosene tank. While all tanks have been removed, no closure documentation was found during the file review to provide details on any remaining soil impact.

Baghouse dust was analyzed in 1989 and found to contain the following total metal concentrations: chromium (349 ppm), nickel (476 ppm), copper (214 ppm), and molybdenum (223 ppm) (Refer to Appendix G - 7/23/1991, NUS, Site visit).

The facility operates under an NPDES Permit to monitor discharge from the outfall into the Little Shenango River.

For additional information, please refer to the Environmental Indicator Inspection Report for Koppers Co.-Hodge Foundry (January 2002), prepared by the US Army Corps of Engineers, Norfolk District.

Footnotes:

[1] "Contamination" and "contaminated" describes media containing contaminants (in any form, NAPL and/or dissolved, vapors, or solids, that are subject to RCRA) in concentrations in excess of appropriately protective risk-based "levels" (for the media, that identify risks within the acceptable risk range).

[2] Recent evidence (from the Colorado Dept. of Public Health and Environment, and others) suggest that unacceptable indoor air concentrations are more common in structures above groundwater with volatile contaminants than previously believed. This is a rapidly developing field and reviewers are encouraged to look to the latest guidance for the appropriate methods and scale of demonstration necessary to be reasonably certain that indoor air (in structures located above (and adjacent to) groundwater with volatile contaminants) does not present unacceptable risks.

3. Are there **complete pathways** between "contamination" and human receptors such that exposures can be reasonably expected under the current (land- and groundwater-use) conditions?

Summary Exposure Pathway Evaluation Table

Potential **Human Receptors** (Under Current Conditions)

"Contaminated" Media	Residents	Workers	Day-Care	Construction	Trespassers	Recreation	Food[3]
Groundwater	___	_X_	___	___			___
Air (indoors)	___	_X_	___				
~~Soil (surface, e.g., <2 ft)~~	~~___~~	~~___~~	~~___~~	~~___~~	~~___~~	~~___~~	~~___~~
~~Surface Water~~	~~___~~	~~___~~			~~___~~	~~___~~	~~___~~
~~Sediment~~	~~___~~	~~___~~			~~___~~	~~___ ___~~	
Soil (subsurface e.g., >2 ft)				_X_			___
~~Air (outdoors)~~	~~___~~	~~___~~	~~___~~	~~___~~	~~___~~		

Instructions for Summary Exposure Pathway Evaluation Table:

1. Strike-out specific Media including Human Receptors' spaces for Media which are not "contaminated") as identified in #2 above.

2. enter "yes" or "no" for potential "completeness" under each "Contaminated" Media -- Human Receptor combination (Pathway).

Note: In order to focus the evaluation to the most probable combinations some potential "Contaminated" Media - Human Receptor combinations (Pathways) do not have check spaces ("___"). While these combinations may not be probable in most situations they may be possible in some settings and should be added as necessary.

_____ If no (pathways are not complete for any contaminated media-receptor combination) - skip to #6, and enter "YE" status code, after explaining and/or referencing condition(s) in-place, whether natural or man-made, preventing a complete exposure pathway from each contaminated medium (e.g., use optional Pathway Evaluation Work Sheet to analyze major pathways).

_____ If yes (pathways are complete for any "Contaminated" Media - Human Receptor combination) - continue after providing supporting explanation.

_____ If unknown (for any "Contaminated" Media - Human Receptor combination) - skip to #6 and enter "IN" status code

Rationale and Reference(s):
Facility officials indicate that an existing on-site well that used to supply up to 1,200 gallons per day of drinking water for the facility is now only used only as a backup source for non-contact cooling water. It is located inside the facility building near the northern side of the facility. The well is drilled to a bottom depth of 265 feet where it is supplied by groundwater from the Cussewago Sandstone formation. The 1991 NUS report stated that the well supplied 1200 gallons per day. No recent information is available on the drinking water quality of this source. As this appears to remain a potential source of potable water, and should this groundwater be contaminated, this well would pose a risk to any facility workers using it. It does appear that institutional controls should be adequate to control potential risks.

Surface soil contamination: See previous section of this EI Form for table of soil contaminants measured at values exceeding regulatory values during 1990 sampling. Most of this surface soil was capped with two feet of clean soil as part of the landfill closure requirements, removing the risk of such soils to facility workers and intruders. This soil still poses a potential threat to on-site construction workers who might be required to excavate for various purposes; however, prudent work practices and PPE are readily available to manage this exposure to acceptable levels.

The facility collects its dust in dust collectors. In the 1991 NUS Corporation report, it was reported that Hodge had two dust collectors on site and both of them were located inside the main facility building. While the outside air emissions are monitored under a Title V Permit, no information regarding the efficiency of indoor dust collection and filtering was provided to determine whether this dust, containing high levels of several metals, posed any significant risk to workers in the buildings.

[3] Indirect Pathway/Receptor (e.g., vegetables, fruits, crops, meat and dairy products, fish, shellfish, etc.)

4. Can the **exposures** from any of the complete pathways identified in #3 be reasonably expected to be **"significant"**[4] (i.e., potentially "unacceptable" because exposures can be reasonably expected to be: 1) greater in magnitude (intensity, frequency and/or duration) than assumed in the derivation of the acceptable "levels" (used to identify the "contamination"); or 2) the combination of exposure magnitude (perhaps even though low) and contaminant concentrations (which may be substantially above the acceptable "levels") could result in greater than acceptable risks)?

X If no (exposures can not be reasonably expected to be significant (i.e., potentially "unacceptable") for any complete exposure pathway) - skip to #6 and enter "YE" status code after explaining and/or referencing documentation justifying why the exposures (from each of the complete pathways) to "contamination" (identified in #3) are not expected to be "significant."

_____ If yes (exposures could be reasonably expected to be "significant" (i.e., potentially "unacceptable") for any complete exposure pathway) - continue after providing a description (of each potentially "unacceptable" exposure pathway) and explaining and/or referencing documentation justifying why the exposures (from each of the remaining complete pathways) to "contamination" (identified in #3) are not expected to be "significant."

_____ If unknown (for any complete pathway) - skip to #6 and enter "IN" status code

Rationale and Reference(s):
Company officials report that the internal facility groundwater well is no longer used as a potable water source and it is only used as a back-up source for non-contact cooling water for facility processes. Without reviewing a recent analysis of this groundwater (no analyses were available in the documents provided), it would be premature to assume that this source is potable; however, adequate institutional controls are available to ensure that personnel are not exposed to this source, if it did turn out to be unacceptable as a potable water source.

Soil previously identified as contaminated at values exceeding regulatory limits were capped with two feet of clean soil as part of the facility's landfill closure requirements, removing the risk of such soils to facility workers and intruders. This soil still poses a potential threat to on-site construction workers who might be required to excavate for various purposes; however, prudent work practices and PPE are readily available that can control potential exposure to acceptable levels.

While no information was provided reflecting that an indoor air quality survey had been performed at the site, no information suggesting any potentially adverse health impacts due to air quality problems involving industrial dust was suggested in any of the previous site investigation documents or inspections. Additionally, the application of typical engineering controls at a foundry would normally be able to provide a safe working environment for workers and the baghouses themselves are permitted facilities. Thus, while facility processes do generate dusts that contain significant levels of inorganic contaminants, there is no reason to suspect that indoor air quality is a significant worker health issue at Koppers Co. Hodge Foundry.

Also, while groundwater contamination due to arsenic was identified as a problem during the period of groundwater monitoring, the requirement for monitoring was removed by PADER in 1993. At that time, the levels had dropped below drinking water MCLs and have presumably continued to decline. While the Federal Drinking Water level for arsenic has recently been significantly lowered, groundwater moving through this area would be expected to seep into the perennial stream that passes just west (below) the area of former contamination. The outlet of this stream continues to be monitored under an NPDES Permit and no problems have been noted. As such, this source appears to pose no unacceptable risk to human health under current land-use.

For additional information, please refer to the Environmental Indicator Inspection Report for Koppers Co.-Hodge Foundry (January 2002), prepared by the US Army Corps of Engineers, Norfolk District.

[4] If there is any question on whether the identified exposures are "significant" (i.e., potentially "unacceptable") consult a human health Risk Assessment specialist with appropriate education, training and experience.

5. Can the "significant" **exposures** (identified in #4) be shown to be within **acceptable** limits?

_____ If yes (all "significant" exposures have been shown to be within acceptable limits) - continue and enter "YE" after summarizing and referencing documentation justifying why all "significant" exposures to "contamination" are within acceptable limits (e.g., a site-specific Human Health Risk Assessment).

_____ If no (there are current exposures that can be reasonably expected to be "unacceptable")- continue and enter "NO" status code after providing a description of each potentially "unacceptable" exposure.

_____ If unknown (for any potentially "unacceptable" exposure) - continue and enter "IN" status code

Rationale and Reference(s):

There are no significant exposures. See previous section.

6. Check the appropriate RCRIS status codes for the Current Human Exposures Under Control EI event code (CA725), and obtain Supervisor (or appropriate Manager) signature and date on the EI determination below (and attach appropriate supporting documentation as well as a map of the facility):

__**X**_ YE - Yes, "Current Human Exposures Under Control" has been verified. Based on a review of the information contained in this EI Determination, "Current Human Exposures" are expected to be "Under Control" at the **KOPPERS CO.-HODGE FOUNDRY** facility, EPA ID # **PAD 00 432 3796**, located at **42 LEACH ROAD, GREENVILLE, PA 16125** under current and reasonably expected conditions. This determination will be re-evaluated when the Agency/State becomes aware of significant changes at the facility.

____ NO - "Current Human Exposures" are NOT "Under Control."

____ IN - More information is needed to make a determination.

Completed by ________________________________ Date: 08-26-02

Tran Tran
Remedial Project Manager

Supervisor ________________________________ Date: 08-26-02

Paul Gotthold
PA Operations Branch Chief
EPA, Region 3

Locations where References may be found:

Necessary references can be located at USEPA Region III headquarters in Philadelphia, PA. A summary of all available investigations to date is presented in the Environmental Indicator Investigation Report For Koppers Co.-Hodge Foundry (January 2002), prepared by the US Army Corps of Engineers, Norfolk District.

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Final Note: The Human Exposures EI is a Qualitative Screening of exposures and the determinations within this document should not be used as the sole basis for restricting the scope of more detailed (e.g., site-specific) assessments of risk.